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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,383	12/23/2003	Yoshiaki Shimizu	12073-0004	7926
22902	7590	01/15/2008		
CLARK & BRODY 1090 VERMONT AVENUE, NW SUITE 250 WASHINGTON, DC 20005			EXAMINER LAZORCIK, JASON L	
			ART UNIT 1791	PAPER NUMBER
			MAIL DATE 01/15/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/743,383	Applicant(s) SHIMIZU, YOSHIAKI	
	Examiner Jason L. Lazorcik	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/05/2007 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant's claim amendments submitted September 10, 2007 have been further considered in this continued examination. In the amendment, Applicant revised the independent claim 1 to read in part that the "gas flow rates of the supporting gas from the three or more groups are, respectively, controllable". Applicant notes that the flow rates are "respectively" controllable, but Applicant fails clearly define what the gas flow rates are controllable with respect to. Without an identified reference to assess the "respective" controllability of the gas flow rates, the particular metes and bounds of the instant claim are rendered unclear and indefinite.

Applicant may overcome the instant rejection by deleting the term "respectively" from the instant claim amendment wherein for example the claim may read; the "gas flow rates of the supporting gas ... are [, respectively,] controllable". Alternately, Applicants specification provides several passages which, if incorporated into the above claim, would resolve the issues regarding lack of definiteness in the instant claim while preserving separate flow rate control in each group.

"the supporting gas is passed there through in a manner as to be controllable in every group" – Pg 6, lines 11-16

"gas sources connected to the hollow body and the plural groups through the gas feed lines at the other ends thereof, respectively, wherein each gas feed line has a control means for controlling a flow rate of a gas to be passed there through". Pg 6, line 20 to pg 7, line 2

Applicant is invited to contact the Examiner on the foregoing matter in order to resolve any remaining lack of clarity issues if it is felt that such a conversation would be helpful in advancing prosecution.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 3, 6, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu (US 6,386,001 B1).

With respect to Claims 1, 2, 3, the instant reference teaches (Column 1, Lines 49-56, and Figure 30) a method for processing a glass preform which includes supporting said preform (106) on a glass working lathe (111) between a stationary chuck (114) and a movable chuck (116). Said lathe is provided with a burner (122) with flow rate control units which provide "flame controlled conditions (Column 32, Lines 1-5, and Column 31, Lines 14-28) by controlling the rate of gas flow of both a combustible gas and oxygen gas or "a supporting gas". The disclosure teaches that at least the outside (285) and inside pipes (286) of the burner are preferably fabricated from stainless steel in order to minimize oxidative damage thereof (Column 37, lines 19-25). The lathe with burner is understood to process said preform under the flame controlled conditions provided by the burner.

Figures 44 and 45 display the detailed structure of the lathe burner. Figure 44 reveals that at least one group of discharge pipes (286) discharge the supporting gas, "O₂", from a common oxygen gas channel (308). The discharge pipes are arranged within a hollow cylinder or hollow body (285) which is open at the end proximal to the lead line 294 and closed at the end distal thereto. The flammable gas, H₂, is understood to flow through the hollow body from the combustible gas channel (312). The reference discloses (Column 31, Lines 46-48) that the distribution pipes are placed

or grouped around the center of the outside pipe in a plurality of rows of concentric circles or "arranged within the hollow body (285) from a center towards an outer periphery". Since the groups thus defined share a common central axis, the groups are considered to be co-axial. Therefore, each concentric circle of distribution pipes is understood to constitute one group (see dashed circles on annotated Fig 45 below) of the claimed co-axially classified plural groups. Taken collectively, these co-axially classified groups constitute the claimed "at least one group of discharge pipes".

As depicted in Figure 45, all the co-axially classified groups are supplied with support gas through the single oxygen gas channel (308) and the flow through said channel is controlled by an oxygen gas flow rate control unit (310). Since the flow rate of the H₂ or "a gas" in the combustible gas channel (312) is separately controlled by the combustible gas flow rate control unit (314), gas flow through the plural groups of coaxially classified discharge pipes is understood to be controllable with respect to a gas flow rate. Since the gas flow from the oxygen channel through ALL of the discharge pipes is controllable with the oxygen gas flow rate control unit, it is understood that the supporting gas is passed there through in a manner as to be controllable in EVERY group.

Regarding claim 6, The prior art teaches that the heating power condition of the flame can be adjusted based on a diameter of the end-drawn region of the glass rod (Column 5, Lines 29-36) and that "the amount of gas supplied to the heating source (122) is set based on the measured diameter (Column 18, Lines 55-57).

With respect to Claim 7, prior art teaches that "the generation of a (gas) pulse caused by the opening and closing of the valve (300) can be prevented by setting a different linear speed value for the oxygen gas at the time of opening and closing of the valve (300)" (Column 33, lines 36-41). Where a gas pulse is understood as a "stepwise" change in the gas flow rate and the indicated prevention of the pulse results in a "gradual" change in gas flow rate, the immediate claim limitation "wherein the flow rates of the gases are changeable in a stepwise manner or gradually" is anticipated by prior art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (US 6,386,001 B1) as applied in the rejection of Claim 1 under 35 USC 102(b).

Shimizu teaches two separate configurations of discharge tubes (286) inside the hollow body (285) in figures 44 and 45.

Specifically, Figure 44 depicts a case wherein the plural groups of “co-axially classified” pipes number 2 (e.g. 1 central tube and 1 circle of peripheral tubes) while Figure 45 depicts a structure wherein the plural groups number 5 (1 central tube and 4 concentric rings of tubes). Shimizu fails to explicitly indicate that the number of plural groups should be exactly three (as set forth in claim 4) or exactly four (as set forth in claim 5).

Absent any compelling and substantially unexpected results to the contrary, it is the Examiners position that the claimed arrangement of 3 or 4 co-axial groups would have represented a merely trivial extension over the prior art teachings for one of ordinary skill in the art at the time of the invention. Specifically, Shimizu teaches the general burner structure as claimed by Applicant having preferred embodiments of 2 and 5 co-axial groups of pipes. Although said reference is silent regarding the particular pipe arrangement as presently claimed, it would have been obvious for one of ordinary skill to attempt the claimed pipe arrangement in an attempt to optimize the flame conditions since such arrangements are bracketed by the prior art preferred embodiments.

Response to Arguments

Applicant's arguments filed September 10, 2007 have been fully considered but they are not persuasive.

With respect to the claim rejections under 35 U.S.C. §102(b), Applicant sets forth three principle arguments.

Applicant first argues that Shimizu uses only one group of discharge pipes. To this end, Applicant alleges that the prior art sets forth "no definition of different groups of pips as has been postulated by the Examiner". Since the prior art does not explicitly delineate a "classification" of different groups of pipes, Applicant concludes that the Examiner has employed hindsight reasoning based upon Applicants invention.

On this matter, the Examiner is not persuaded.

Applicants claim requires explicitly that "at least one group of discharge pipes" be "co-axially classified into three or more groups". It is the Examiners position, using the broadest reasonable interpretation of the claim language, that the prior art discharge tubes, which Applicant admits to be arranged in the form of concentric circles, are correctly construed to be "co-axially classified". Applicants observation alleging that the prior art does not explicitly treat the pipe arrangement as "co-axially classified" does not amount to hindsight reasoning on the part of the Examiner nor does it invalidate the Examiners interpretation of the prior art disclosed burner structure. Further, Applicant has set forth no reasoned basis why such an interpretation runs contrary to the teachings set forth in the prior art reference.

Applicant further argues that Shimizu does not teach a burner made of metal.

On this matter, the Examiner strongly disagrees.

With respect to the preferred materials of construction for the burner, the prior art reference explicitly states;

"Oxidation of the surface of the outside pipe 285 and the inside pipe 286 does not readily occur if the outside pipe 285 and the inside pipe 286 are made of stainless steel. This is because iron, chromium, and nickel, which are contained in stainless steel, form a passive thin film on the surface of the stainless steel from the effect of the nitric acid, thus protecting the surfaces."

In view of the foregoing, it is the Examiners position that metal and particularly stainless steel are clearly set forth by the prior art as preferred materials of construction for the burner apparatus.

Applicant finally argues that Shimizu fails to teach the control aspect of claim 1, namely wherein the discharge pipes are "classified into three or more groups and each group is controllable" and that claim 1 "requires respective control of each group".

The Examiner's position on this matter has been previously presented to the Applicant in the Office Action dated June 13, 2007.

Specifically, it is the Examiners position first that the term "respectively" controllable is not equivalent to nor does it imply "independent" or "separate" control over an event or a element. The claim recites the limitation that wherein "gas flow rates of the supporting gas from the three or more groups are, respectively, controllable".

Notwithstanding the identified deficiencies under 35 USC §112, second paragraph, when looking to an accepted definition of the term "respectively", we find that said term is commonly used to indicate "(of two or more things, with reference to two or more things previously mentioned) referring or applying to in a parallel or sequential way" *Random House Unabridged Dictionary, © Random House, Inc. 2006*. Of particular importance here is that the term "respectively" provides for the scenario wherein two or more of the identified "plural groups" are controlled in a parallel (read "simultaneous") way.

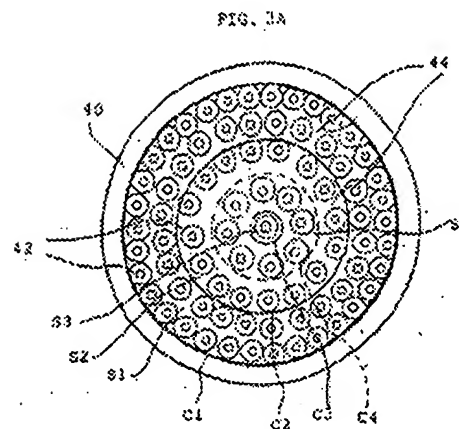
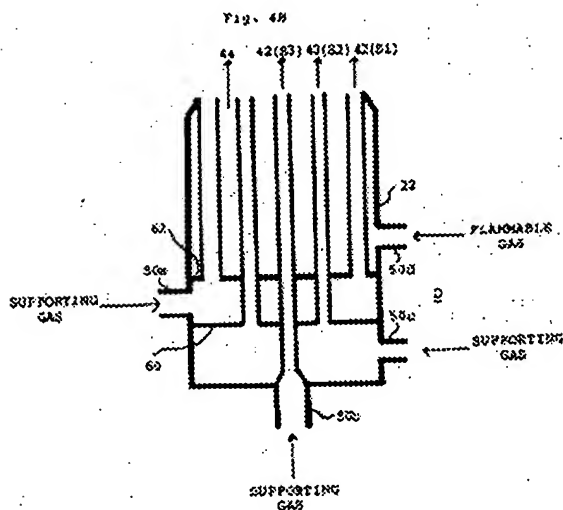
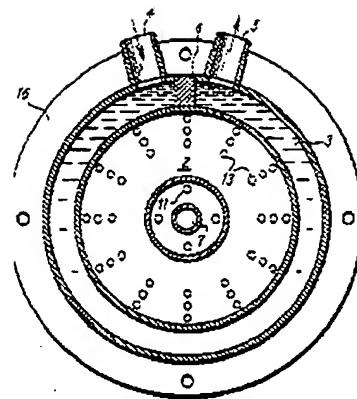
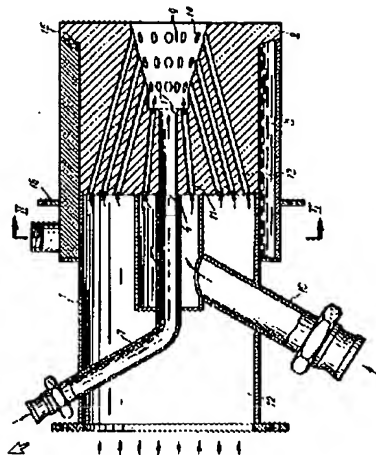
It follows that Applicants arguments alleging that Shimizu does not provide for the "respective" control over gas flow rates within the "co-axially classified" pipes are held to be without merit

To the extent that Applicant appears to argue a lack of independent control between the "co-axially classified" pipes in the Shimizu reference, the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gitman (US 4,622,007) teaches a burner configuration wherein multiple concentric groups of controllable oxidant channels distribute oxidant to a fuel in a combustion process.

Although not necessary in the above rejection, the following excerpt images (Fig 1, top left, and Fig. 2, top right) from Gitman are provided to underscore the fact that burners presenting "at least one group of discharge pipes co-axially classified into plural groups" similar to applicants burner structures Figure 3A and Figure 4B (Bottom left and bottom right, respectively) have been well established through analogous prior art teachings. More specifically, it will be well appreciated from a reading of the Gitman reference (Figs 5, 6 and column 4, line 11 to Column 6, line 32) that it is known to provide independent control over the flow rate of combustible and carrier gases through each of these plural groups in order to control the nature of combustion in the resulting burner flame. Gitman would have provided an obvious approach to optimizing the economical operation (see Column 1, lines 33-50) of the burner unit in the Shimizu process.




Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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